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CLAIM AMENDMENTS

1. (Currently Amended) A method of fabricating at least a portion of a biomedical implant, comprising the steps of:

receiving digital data indicative of patient physiology;

constructing a computer-aided design (CAD) file in accordance with the digital data;

generating a tool path; and

fabricating the implant or portion thereof by depositing material increments along the tool path using a closed-loop direct metal deposition (DMD) process of the type wherein a laser beam is focused onto a workpiece to create a melt pool into which powder is injected.

2. (Original) The method of claim 1, further including the step of using a closed-loop DMD process, wherein the size of the increments are controlled through optical monitoring.

3. (Original) The method of claim 1, wherein the materials include one or more metals or ceramics.

4. (Original) The method of claim 1, wherein the materials include zirconia or alumina.

5. (Original) The method of claim 1, further including the step of fabricating the implant out of different materials using the same DMD process.

6. (Original) The method of claim 5, wherein the different materials include metals, ceramics, or polymers.

7. (Original) The method of claim 1, further including the step of embedding one or more sensors into the implant for diagnostic or data-acquisition purposes.

GIFFORD, KRASS, GROH, SPRINKLE, ANDERSON & CITKOWSKI P.C. 2701 TROY CENTER DR., SUITE 330, P.O. BOX 7021 TROY, MICHIGAN 48007-7021 (248) 647-8000

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8. (Original) The method of claim 1, further including the step of fabricating a scaffold structure suitable to bone ingrowth or ongrowth using the DMD process.

GIFFORD, KRASS, GROH, SPRINKLE, ANDERSON & CITKOWSKI, P.C. 2701 TROY CENTER DR., SUITE 330, P.O. BOX 7021 TROY, MICHIGAN 48067-7021 (248) 847-6000